

Application No. 10/811,574
Response dated October 10, 2008October 10, 2008 to
Final Office Action mailed July 10, 2008

REMARKS

The Examiner has rejected claims 1 and 4-8 under 35 U.S.C. § 102(b) as being anticipated by Wang et al. U.S. Patent Application Publication No. 2002/0173127. Claims 2 and 9 are rejected under § 103(a) as being unpatentable over Wang et al. in view of Cui et al. U.S. Patent Application Publication No. 2002/0151186. Claims 1, 2 and 4-9 are rejected under § 103(a) as being unpatentable over Fong et al. U.S. Patent No. 5,812,403 in view of Wang et al. Claims 3 and 10-19 are withdrawn from consideration. The following remarks are respectfully submitted.

Independent claims 1 and 8 are amended herein to include the subject matter of dependent claims 2 and 9, respectively, and claims 2 and 9 are therefore canceled. Withdrawn claims 3 and 10-19 are also canceled without prejudice to their re-filing in a divisional application.

In view of the amendment herein, the rejection of claims 1 and 4-8 under § 102(b) over Wang et al. is rendered moot.

With respect to the rejection of claims 2 and 9 under § 103 over Wang et al. in view of Cui et al., Applicants respectfully traverse. Wang et al. is directed to providing a uniform wafer temperature such that a uniform layer is deposited on the wafer in a deposition process. Variations in temperature in the chamber, such as caused by non-uniform susceptor temperature or wafer temperature, can result in non-uniformity in the thickness of the deposited layer. In paragraph [0005] referred to by Examiner, Wang et al. disclose measuring the susceptor temperature, and indirectly the wafer temperature, by an optical pyrometer that measures the optical intensity emitted by the susceptor. Wang et al. recognize that surface condition of the susceptor affects the emissivity. Thus, accumulated residues on the susceptor need to be cleaned off periodically because they affect the emissivity reading, thus providing an inaccurate measurement for the wafer temperature. However, Wang et al. certainly do not disclose that the emission is monitored for purposes of determining the status of a coating on the susceptor during a process to clean that coating off of the susceptor, nor that monitoring of the emissions may be useful during the cleaning process to determine whether the susceptor is sufficiently cleaned so as

to determine the stopping point for the cleaning process. Moreover, there is no discussion of determining a threshold value for the emission for an uncoated susceptor and then comparing the measured value of emission from a coated susceptor to the threshold value to determine when the coating has been sufficiently cleaned so as to determine the stopping point for the cleaning process. Consequently, Wang et al. do not teach or suggest the method of claim 1 of monitoring the emissions from a ceramic substrate heater during a cleaning process for removing a coating from the ceramic substrate heater, determining the coating status of the ceramic substrate heater from that monitoring, and either continuing the exposing and monitoring when the determining indicates that the ceramic substrate heater is not sufficiently cleaned or stopping the cleaning process when the determining indicates that the ceramic substrate heater is sufficiently cleaned. And, Wang et al. do not teach or suggest the method of claim 8 of determining a threshold value of an optical emission intensity radiating from the ceramic substrate heater having no coating formed thereon, monitoring the measure value of emission from a coated ceramic substrate heater during a cleaning process for removing the coating therefrom and comparing the measured value to the threshold value, determining the coating status of the ceramic substrate heater from that monitoring and comparing, and stopping the cleaning process when the measured value approximately equals the threshold value.

Examiner further relies on Cui et al. in combination with Wang et al. for teaching a cleaning process that uses optical monitoring. In Cui et al., the temperature of the cleaning gas is monitored, and the end-point of the cleaning process is indicated when the temperature of the cleaning gas reaches a steady state. This teaching, in combination with Wang et al., does not amount to a teaching or suggestion of monitoring optical emissions radiating from a coated ceramic substrate heater as the coating is being removed, as set forth in claims 1 and 8. It also does not amount to a teaching or suggestion of measuring a threshold value of optical emission radiating from an uncoated ceramic substrate heater, then comparing the measured value radiating from the coated ceramic substrate heater to the threshold value, and stopping the process when the measured value approximately equals the threshold value. Therefore, it is asserted that there is no *prima facie* case of obviousness over Wang et al. in view of Cui et al. for the amended claims

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herein, and it is respectfully requested that the rejection be withdrawn.

With respect to the rejection of claims 1, 2 and 4-9 under § 103 over Fong et al. in view of Wang et al., Applicants respectfully traverse. Examiner admits that Fong et al. do not explicitly teach monitoring optical emission radiating from the heater. Examiner then asserts that Wang et al. teaches determining process end points by measuring radiation directly emitted by a heater in paragraph 0005. Wang et al. do not teach determining end points as Examiner asserts. As explained above, Wang et al. merely disclose measuring the optical intensity emitted by the susceptor to indirectly measure wafer temperature, and recognize that residue on the susceptor surface will affect the accuracy of that measurement, such that the chamber needs periodic cleaning to remove residue to ensure accurate wafer temperature measurement. Wang et al. therefore does not teach or suggest modifying Fong et al. to monitor optical emissions radiating from a coated heater to determine the status of the coating during a cleaning process to remove the coating so as to determine when to stop the cleaning process. Therefore, it is asserted that there is no *prima facie* case of obviousness over Fong et al. in view of Wang et al. for the amended claims herein, and it is respectfully requested that the rejection be withdrawn.

In view of the foregoing amendments to the claims and remarks given herein, Applicants respectfully believe this case is in condition for allowance and respectfully request allowance of the pending claims. If the Examiner believes any detailed language of the claims requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

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Applicants are of the opinion that no additional fee is due as a result of this Amendment. If any charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,
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